

FIG. 1

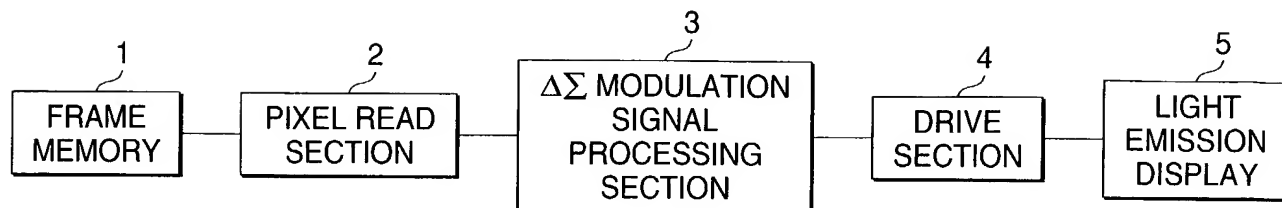


FIG. 2A

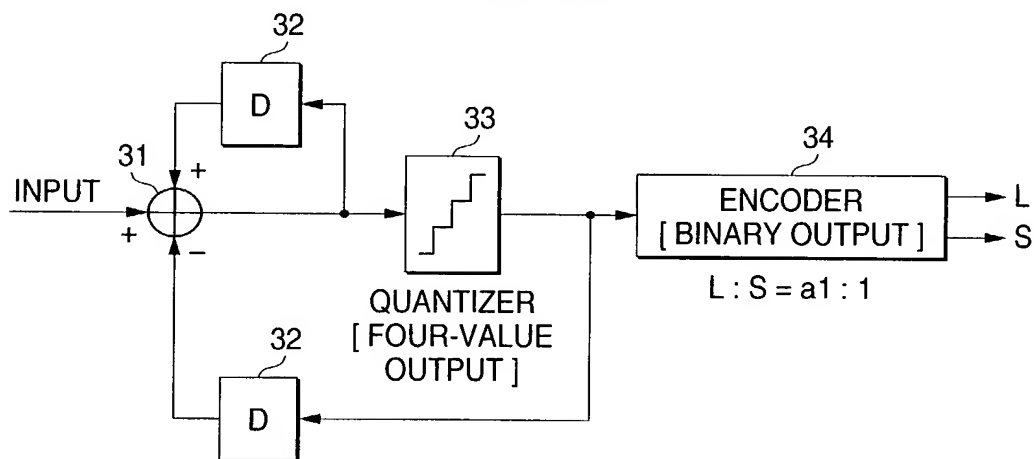


FIG. 2B

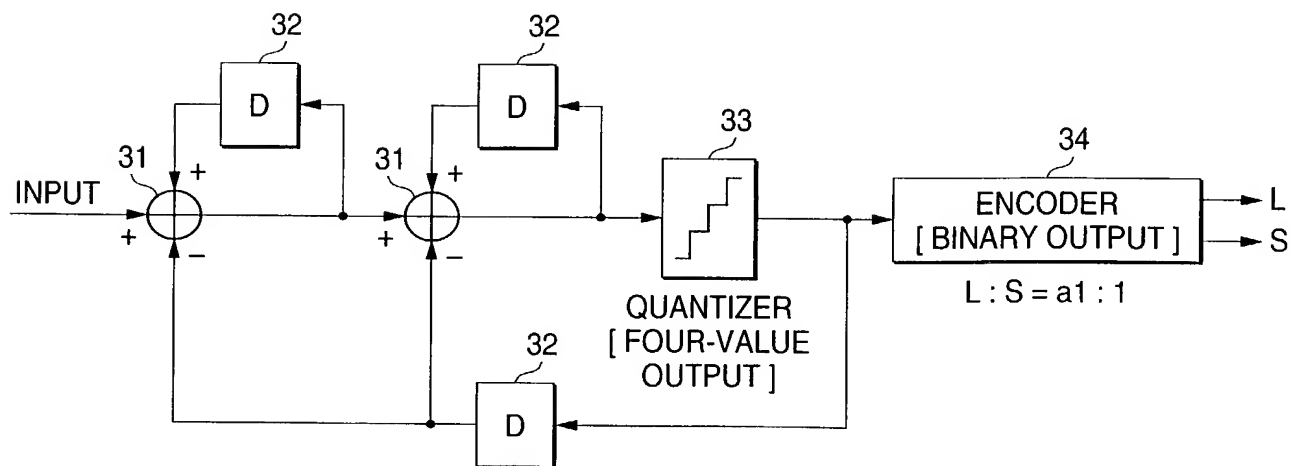


FIG. 3A

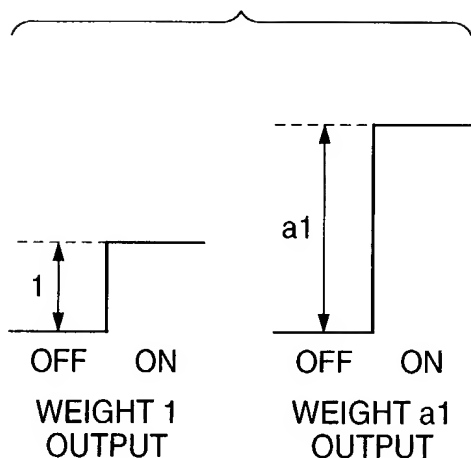


FIG. 3B

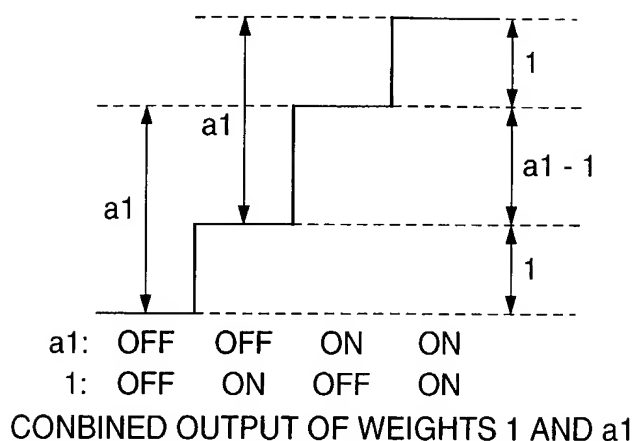


FIG. 4

WEIGHT RATIO OF TWO OUTPUTS	1 : a1 WHERE $a1 > 1$
INPUT RANGE: $x1$ TO $x2$ (AS CONVERSION OF EIGHT BITS: 0 TO 255)	-127.5 TO +127.5 (CENTER IS 0.0 AND WIDTH IS 255)
FOUR VALUES OF QUANTIZER OUTPUT $y1, y2, y3, y4$	AS PEAK-TO-PEAK VALUE $[y1, y4] = [x1 - \alpha, x2 + \alpha]$ SET A LITTLE WIDER THAN INPUT  AS INTERMEDIATE VALUES $y2$ AND $y3$ ARE SET SO THAT $(y4 - y1) : (y3 - y1) : (y2 - y1)$ $= (a1 + 1) : a1 : 1$
THREE LEVELS OF QUANTIZER THRESHOLD $z1, z2, z3$	$z1 = (y1 + y2) / 2$ $z2 = (y2 + y3) / 2$ $z3 = (y3 + y4) / 2$ SET TO MIDDLE POINT OF LEVEL DIFFERENCE

FIG. 5

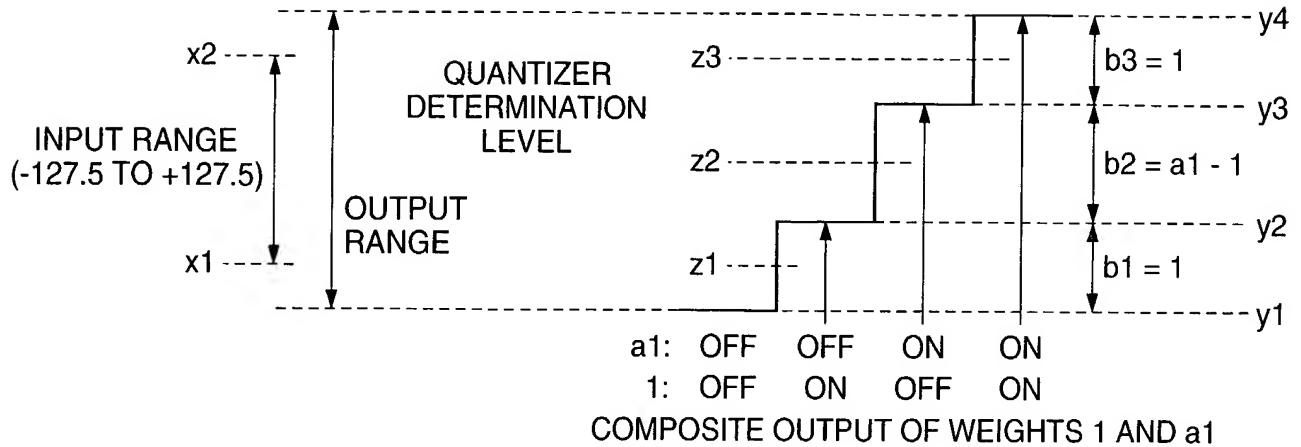


FIG. 6A

WHEN a1 = 2

b1 : b2: b3	1 : 1 : 1
x1, x2	-127.5, +127.5
y1, y2, y3, y4	IF THE PEAK-TO-PEAK VALUE IS, FOR EXAMPLE, [ y1, y4 ] = [ -130.5, +130.5 ] OTHERS ARE DETERMINED [ y2, y3 ] = [ -43.5, +43.5 ] IN CONCLUSION, [ y1, y2, y3, y4 ] = [ -130.5, -43.5, +43.5, +130.5 ]
z1, z2, z3	-87.0, 0.0, +87.0

FIG. 6B

WHEN a1 = 4

b1 : b2: b3	1 : 3 : 1
x1, x2	-127.5, +127.5
y1, y2, y3, y4	IF THE PEAK-TO-PEAK VALUE IS, FOR EXAMPLE, [ y1, y4 ] = [ -132.5, +132.5 ] OTHERS ARE DETERMINED [ y2, y3 ] = [ -79.5, +79.5 ] IN CONCLUSION, [ y1, y2, y3, y4 ] = [ -132.5, -79.5, +79.5, +132.5 ]
z1, z2, z3	-106.0, 0.0, +106.0

FIG. 7A

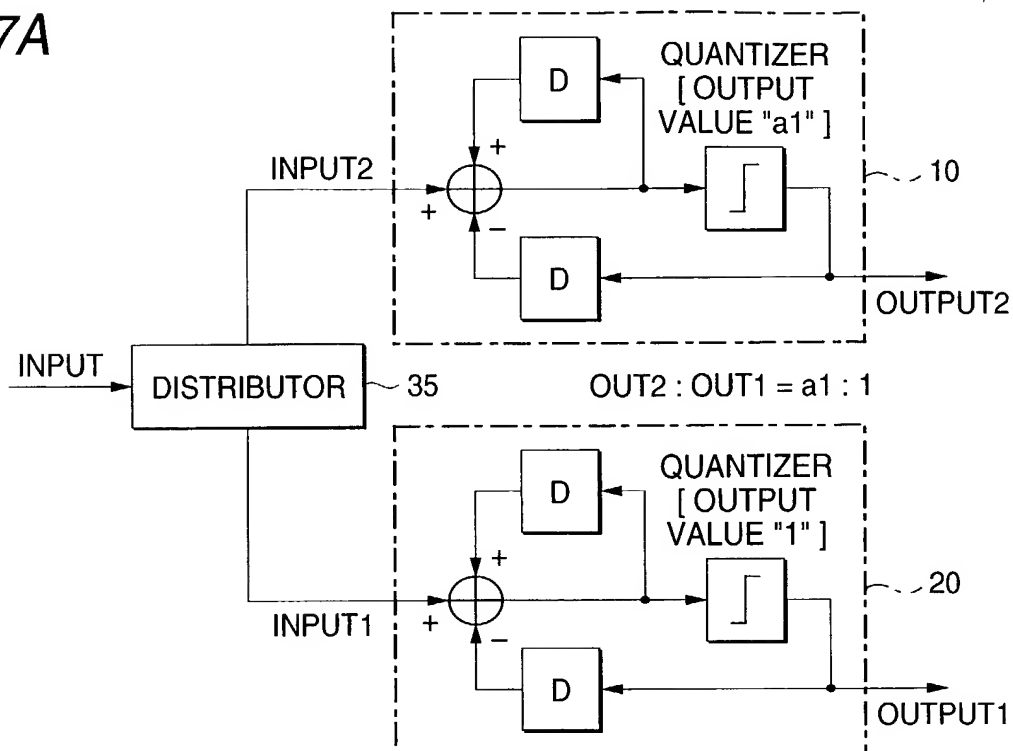


FIG. 7B

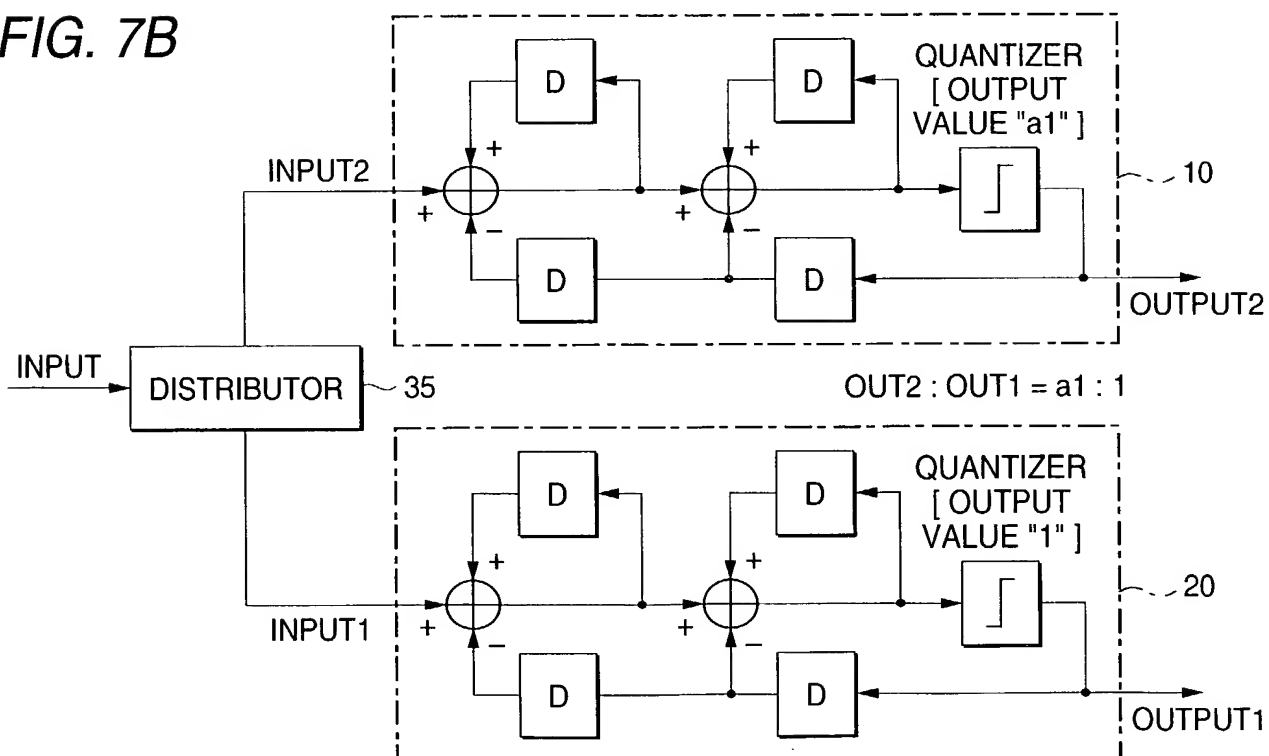


FIG. 8A

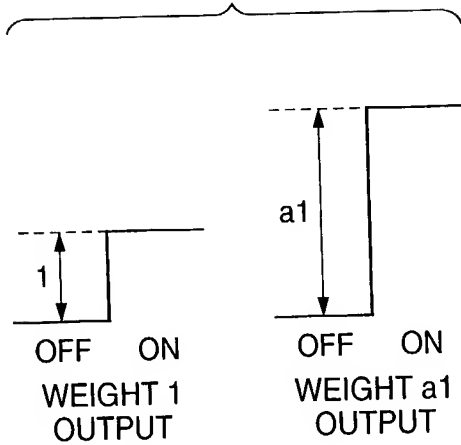


FIG. 8B

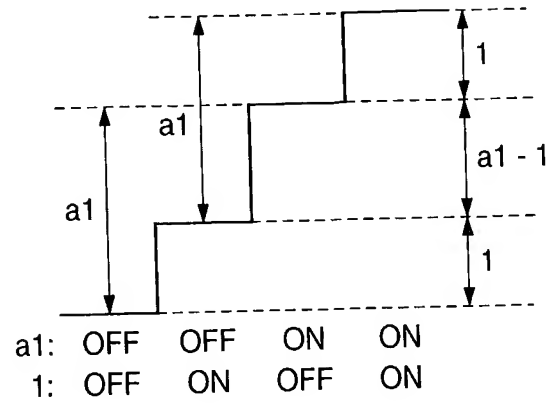


FIG. 9

WEIGHT RATIO OF TWO OUTPUTS	1 : a1 WHERE $a1 > 1$
INPUT RANGE: $x1$ TO $x2$ (AS CONVERSION OF EIGHT BITS: 0 TO 255)	-127.5 TO +127.5 (CENTER IS 0.0 AND WIDTH IS 255)
FOUR VALUES OF QUANTIZER OUTPUT IN METHOD 1 $y1, y2, y3, y4$ (AS REFERENCE VALUES TO SET $p1, p2, q1$ AND $q2$ )	AS PEAK-TO-PEAK VALUE $[y1, y4] = [x1 - \alpha, x2 + \alpha]$  AS INTERMEDIATE VALUES $y2$ AND $y3$ ARE SET SO THAT $(y4 - y1) : (y3 - y1) : (y2 - y1) = (a1 + 1) : a1 : 1$
TWO VALUES OF WEIGHT 1 QUANTIZER OUTPUT $p1, p2$ THRESHOLD LEVEL $pz1$	$p1 = -(y2 - y1) / 2$ $p2 = +(y2 - y1) / 2$ $pz1 = 0.0$ CENTER VALUE OF $p1$ AND $p2$
TWO VALUES OF WEIGHT a1 QUANTIZER OUTPUT $q1, q2$ THRESHOLD LEVEL $qz1$	$q1 = -(y3 - y1) / 2$ $q2 = +(y3 - y1) / 2$ $qz1 = 0.0$ CENTER VALUE OF $q1$ AND $q2$

FIG. 10A

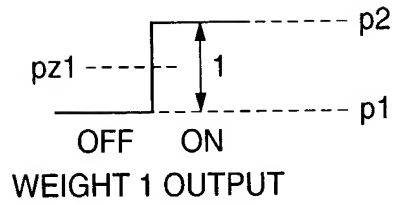


FIG. 10B

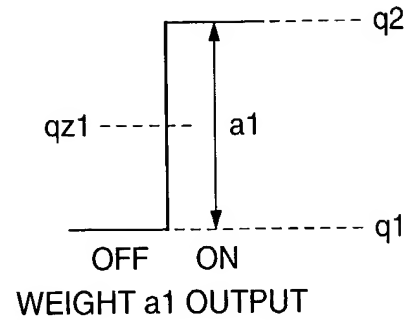


FIG. 11A

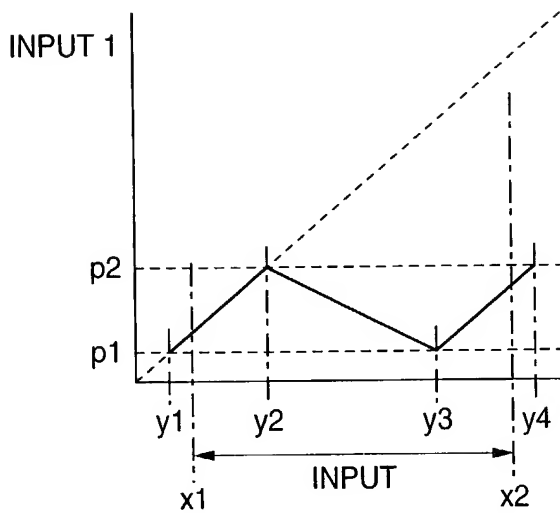


FIG. 11B

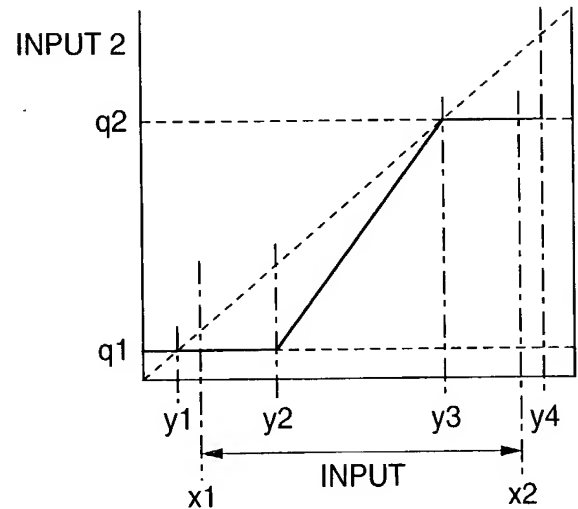


FIG. 12A

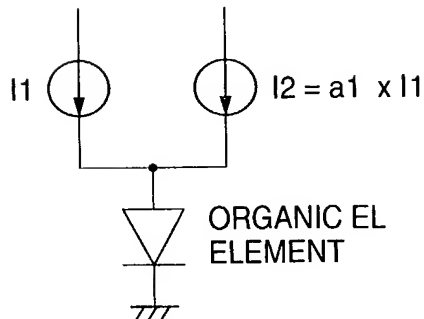


FIG. 12B

